WHAT IS CLAIMED IS:

1. In a system for processing and displaying a DVD-video data stream, a system for decoding and processing a subpicture data stream which comprises a subpicture pixel data stream, and a subpicture display control data stream, said subpicture display control data stream comprising one or more subpicture display control commands, one or more of said subpicture display control commands comprising subpicture display control information, said system comprising:

at least one processing unit for processing software programmed to perform at least some subpicture data stream decoding and subpicture display control command execution; and

a subpicture hardware unit configured to receive said subpicture pixel data stream, and subpicture display control information extracted from a subpicture display control command executed by said at least one processing unit and subpicture display control commands not executed by said at least one processing unit, and generate subpicture display information which is presented to a DVD video display unit.

2. The system as recited in claim 1, wherein said subpicture display information comprises pixel color and contrast values for pixels in the subpicture display.

3. The system as recited in claim 1, further comprising memory for storing said subpicture pixel data stream and said subpicture display control data stream extracted from the subpicture data stream, said memory storing said subpicture pixel data stream and said subpicture display control data stream prior to said at least one processing unit and said subpicture hardware unit processing said subpicture pixel data stream and said subpicture display control data stream.

4. The system as recited in claim 1, wherein said at least one processing unit is programmed to execute one or more of the subpicture display control commands selected from the group of subpicture display control commands comprising FSTA_DSP, STA_DSP, STP_DSP, SET_COLOR, SET_CONTR, SET_DAREA, SET_DSPXA, and CMD_END.

5. The system as recited in claim 4, wherein said at least one processing unit executes said one or more of the subpicture display control commands by extracting subpicture display control information from the subpicture display control

commands and transmitting the subpicture display control information to one or more registers in said subpicture hardware unit, and wherein said subpicture hardware unit uses the subpicture display control information in conjuntion with subpicture pixel data from said subpicture pixel data stream to generate said subpicture display information.

6. The system as recited in claim 5, wherein said subpicture display control information comprises pixel color information, pixel contrast information, or subpicture display area information.

7. The system as recited in claim 1, wherein said subpicture hardware unit is configured to process real time, pixel-by-pixel subpicture display control commands.

8. The system as recited in claim 7, wherein one of said real time, pixel-by-pixel subpicture display control commands comprises a change color/contrast subpicture display control command (CHG_COLCON).

9. The system as recited in claim 7, wherein said subpicture hardware unit processes said real-time, pixel-by-pixel subpicture display control commands by receiving subpicture pixel data and said real-time, pixel-by-pixel subpicture display control commands, decode and process said real-time, pixel-by-pixel subpicture display control commands in order to extract subpicture display control command information therefrom, and process said subpicture pixel data in conjunction with said subpicture display control command information to generate said subpicture display information.

10. The system as recited in claim 9, wherein said subpicture display control command information comprise pixel color information and pixel contrast information, and wherein said subpicture hardware unit uses a code from said subpicture pixel data to assign a pixel color value from said pixel color information and a pixel contrast value from said pixel contrast information to pixels which create the subpicture display.

11. The system as recited in claim 1, wherein said subpicture hardware unit receives and decodes subpicture pixel data from said subpicture pixel data stream which is run-length encoded.

12. The system as recited in claim 1, wherein said subpicture hardware unit is configured to determine color and contrast values for each pixel of the subpicture display.

13. The system as recited in claim 1, wherein said at least one processing unit comprises a first processing unit programmed to extract subpicture packs from a DVD-video data stream, and a second processing unit programmed to receive the subpicture packs from said first processing unit and extract and execute at least some of the subpicture display control commands.

14. The system as recited in claim 3, wherein said at least one processing unit is programmed to extract subpicture data packs from a DVD-video data stream, extract said subpicture pixel data stream and said subpicture display control data stream from said subpicture packs, store said subpicture pixel data stream and said subpicture display control data stream in said memory, extract said subpicture pixel data stream and said subpicture display control data stream from said memory when needed, parse the subpicture display control data stream and extract subpicture display control commands therefrom, and execute non-pixel-by-pixel subpicture display control commands by extracting subpicture display control information therefrom and transmitting said subpicture display control information and subpicture pixel data from said subpicture pixel data stream to said subpicture hardware unit for processing.

15. The system as recited in claim 14, wherein said non-pixel-by-pixel subpicture display control commands comprise FSTA_DSP, STA_DSP, STP_DSP, SET_COLOR, SET_CONTR, SET_DAREA, SET_DSPXA, and CMD_END.

16. In a system for processing and displaying a DVD-video data stream, a method for decoding and processing a subpicture data stream which comprises a subpicture pixel data stream, and a subpicture display control data stream, said subpicture display control data stream comprising one or more subpicture display control commands, one or more of said subpicture display control commands comprising subpicture display control information, said method comprising the steps of:

at least one processing unit decoding said subpicture data stream and executing one or more subpicture display control commands; and

a subpicture hardware unit receiving said subpicture pixel data stream, and subpicture display control information extracted from a subpicture display control command executed by said at least one processing unit and subpicture display control commands not executed by said at least one processing unit, and generating subpicture display information and presenting said subpicture display information to a DVD video display unit.

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17. The method as recited in claim 16, wherein said step of generating subpicture display in formation comprises generating pixel color and contrast values for pixels in the subpicture display.

18. The method as recited in claim 16, further comprising the step of storing said subpicture pixel data stream and said subpicture display control data stream extracted from the subpicture data stream prior to said at least one processing unit and said subpicture hardware unit processing said subpicture pixel data stream and said subpicture display control data stream.

19. The method as recited in claim 16, wherein said step of said at least one processing unit executing one or more subpicture display control commands comprises executing one or more subpicture display control commands selected from the group of subpicture display control commands comprising FSTA_DSP, STA_DSP, STP_DSP, SET_COLOR, SET_CONTR, SET_DAREA, SET_DSPXA, and CMD_END.

20. The method as recited in claim 19, wherein said step of said at least one processing unit executing one or more subpicture display control commands, further comprises the steps of:

extracting subpicture display control information from the subpicture display control commands; and

transmitting the subpicture display control information to one or more registers in said subpicture hardware unit.

21. The method as recited in claim 20, further comprising the step of said subpicture hardware unit using the subpicture display control information in conjuntion with subpicture pixel data from said subpicture pixel data stream to generate said subpicture display information.

22. The method as recited in claim 19, wherein said step of extracting subpicture display control information from the subpicture display control commands comprises extracting pixel color information, pixel contrast information, or subpicture display area information from said subpicture display control commands.

23. The method as recited in claim 16, further comprising the step of said subpicture hardware unit processing real time, pixel-by-pixel subpicture display control commands.

24. The method as recited in claim 23, wherein said step of said subpicture hardware unit processing real time, pixel-by-pixel subpicture display control commands comprises processing a change color/contrast subpicture display control command (CHG_COLCON).

25. The method as recited in claim 23, wherein said step of said subpicture hardware unit processing real time, pixel-by-pixel subpicture display control commands further comprises the steps of:

said subpicture hardware unit receiving subpicture pixel data and said real-time, pixel-by-pixel subpicture display control commands;

decoding and processing said real-time, pixel-by-pixel subpicture display control commands in order to extract subpicture display control command information therefrom;

processing said subpicture pixel data in conjunction with said subpicture display control command information to generate said subpicture display information.

26. The method as recited in claim 25, wherein said subpicture display control command information comprise pixel color information and pixel contrast information, and wherein said step of processing said subpicture pixel data in conjunction with said subpicture display control command information to generate said subpicture display information comprises said subpicture hardware unit using a code from said subpicture pixel data to assign a pixel color value from said pixel color information and a pixel contrast value from said pixel contrast information to pixels which create the subpicture display.

27. The method as recited in claim 16, wherein said step of said at least one processing unit decoding said subpicture data stream further comprises the steps of:

a first processing unit extracting subpicture packs from a DVD-video data stream; and

a second processing unit receiving the subpicture packs from said first processing unit and extracting and executing at least some of the subpicture display control commands.

28. In a system for processing and displaying a DVD-video data stream, a method for decoding and processing a subpicture data stream which comprises a subpicture pixel data stream, and a subpicture display control data stream, said subpicture display control data stream comprising one or more subpicture display control commands, one or more of said subpicture display control commands comprising subpicture display control information, said method comprising the steps of:

at least one processing unit extracing subpicture data packs from a DVD-video data stream;

said at least one processing unit extracting said subpicture pixel data stream and said subpicture display control data stream from said subpicture packs;

said at least one processing unit parsing the subpicture display control data stream and extracting subpicture display control commands therefrom;

said at least one processing unit executing non-pixel-by-pixel subpicture display control commands by extracting subpicture display control information therefrom and transmitting said subpicture display control information and subpicture pixel data from said subpicture pixel data stream to a subpicture hardware unit for processing; and

said subpicture hardware unit receiving said subpicture pixel data, and subpicture display control information extracted from a subpicture display control command and generating subpicture display information and presenting said subpicture display information to a DVD video display unit.

29. The method as recited in claim 28, further comprising the steps of:

after said step of extracting said subpicture pixel data stream and said subpicture display control data stream from said subpicture packs, said at least one processing unit storing said subpicture pixel data stream and said subpicture display control data stream in memory; and

said at least one processing unit obtaining said subpicture pixel data stream and said subpicture display control data stream from said memory when needed.

30. The method as recited in claim 28, wherein said non-pixel-by-pixel subpicture display control commands comprise FSTA_DSP, STA_DSP, STP_DSP, SET_COLOR, SET_CONTR, SET_DAREA, SET_DSPXA, and CMD_END.

31. The method as recited in claim 28, further comprising the steps of:

said at least one processing unit transmitting real-time, pixel-by-pixel display control commands to said subpicture hardware unit; and

said subpicture hardware unit processing said real-time, pixel-by-pixel display control commands.

32. The method as recited in claim 31, wherein said step of said subpicture hardware unit processing real time, pixel-by-pixel subpicture display control commands comprises processing a change color/contrast subpicture display control command (CHG_COLCON).

33 The method as recited in claim 31, wherein said step of said subpicture hardware unit processing real time, pixel-by-pixel subpicture display control commands further comprises the steps of:

said subpicture hardware unit receiving subpicture pixel data and said real-time, pixel-by-pixel subpicture display control commands;

decoding and processing said real-time, pixel-by-pixel subpicture display control commands in order to extract subpicture display control command information therefrom;

processing said subpicture pixel data in conjunction with said subpicture display control command information to generate said subpicture display information.